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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,155	12/27/2000	Daigo Yoshioka	15162/03030	8696

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EXAMINER

HENN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2612

10

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,155

Applicant(s)

YOSHIOKA ET AL.

Examiner

Timothy J Henn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 12/15/2003. These drawings are acceptable and overcome objections related to prior art labels made in action entered on 8/14/2003.

Specification

2. The amendment filed on 12/15/2003 overcomes all previous objections to the specification made in action entered on 8/14/2003.

Claim Objections

3. The amendment filed on 12/15/2003 overcome minor informality objections made in action entered on 8/14/2003.

Response to Arguments

4. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 3, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shono (US 6,630,959) in view of Hori (US 5,860,034).
7. In regard to claim 1, Shono discloses a camera comprising a taking lens (Figure 1, Item 10), an image sensor (Figure 1, Item 12), a finder (Figure 1, Item 16), a

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moveable light splitter (Figure 2, Item 11; Column 3, Lines 53-60) and a driver to move the light splitter as needed (not shown), therefore, it can be seen that Shono lacks a controller to change the light splitter from a semi-transparent state to a blocking state when the light splitter is moved to a second position. Hori teaches a liquid crystal (LC) shutter system placed within the optical path of the finder eyepiece can be used to "prevent external light from entering into the main body of the camera through the finder eyepiece window at the time of metering operation and/or exposure" (column 11, lines 50-59). Hori also teaches that the LC shutter itself can be placed "anywhere, so long as light entering from the finder eyepiece window can be prevented from arriving at the photometry light-receiving element" (column 11, lines 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the LC shutter system with the light splitter in the camera design of Shono to allow the light splitter to change from a transparent state in a first position to a blocking state in a second position as claimed in order to "prevent external light from entering into the main body of the camera through the finder eyepiece window at the time of metering operation and/or exposure."

8. In regard to claim 2 as read, Shono discloses a camera comprising a taking lens, an image sensor, a finder, a moveable light splitter and a driver to move the light splitter as needed, therefore it can be seen that Shono lacks a light splitter which is a LC plate having variable transmission. However, it is well known in the art that liquid crystal plates of variable transmittance can be used as light splitters, for example see McAdams (US 4,822,141). Therefore, It would have been obvious to one of ordinary

skill in the art at the time the invention was made to use a liquid crystal plate of variable transmittance as the light splitter of Shono to remove the need of a combined liquid crystal plate and half-mirror to perform the same functions (Official Notice).

9. In regard to claim 3, Shono discloses a camera comprising a taking lens, an image sensor, a finder, a moveable light splitter and a driver to move the light splitter as needed, therefore, it can be seen that Shono lacks a light splitter providing an LC plate having variable transmission on a semi-transparent mirror. Hori teaches a liquid crystal (LC) shutter or "plate" placed within the optical path of the finder eyepiece can be used to "prevent external light from entering into the main body of the camera through the finder eyepiece window at the time of metering operation and/or exposure" (column 11, lines 50-59). Hori also teaches that the LC shutter can be placed "anywhere, so long as light entering from the finder eyepiece window can be prevented from arriving at the photometry light-receiving element" (column 11, lines 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a LC shutter or "plate" directly on the semi-transparent mirror of Shono as claimed in order to "prevent external light from entering into the main body of the camera through the finder eyepiece window at the time of metering operation and/or exposure."

10. In regard to claim 9, Shono discloses a system for moving a semi-transparent mirror or "light splitting device" to a second position (Figure 2, Figure 11; Column 3, Lines 53-60) during the exposure stage of taking a photograph, therefore it can be seen that Shono lacks a method for changing the transparency of the light splitting device once it is moved into the second position. Hori teaches that an LC shutter can be

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added which can be changed to a non-transparent state during the exposure stage of taking a photograph in order to block light from entering the camera body to improve image quality and reduce flare effects (column 11, lines 50-59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an LC shutter to the semi-transparent mirror of Shono to create a "light splitting device" which is able to change its transparency, and to combine the methods of Shono and Hori to move the semi-transparent mirror and to open and close the LC shutter at the same time to provide a method of controlling the "light splitting device" to a semi-transparent state (LC shutter open) when in the first position, and a blocking state (LC shutter closed) when in a second position as claimed.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shono (US 6,630,959) in view of Hori (US 5,860,034) as applied to claim 1 above, and further in view of Iwamoto (US 6,249,650).

12. As applied to claim 1, Shono in view of Hori discloses a single lens reflex camera comprising a taking lens, an image sensor, a finder, a moveable light splitting device, a driver to move the light splitting device as needed and a controller to change the light splitting device from semi-transparent in the first position to non-transparent or blocking in the second position, therefore it can be seen that Shono in view of Hori lacks a switch to move the light splitting device from the second position to the first position. Iwamoto discloses a camera with a mirror or "light splitting device" control switch (figure 2, item 17) that allows the user to manually change the position of the mirror or "light splitting

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device" between a first position and a second position. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a mirror or "light splitting device" control switch to the design of Shono in view of Hori as applied to claim 1 to allow the user to move the mirror or "light splitting device" from the second position to the first position by operating a switch as claimed.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shono (US 6,630,959) in view of Hori (US 5,860,034) as applied to claim 1 above, and further in view of Sakaegi (US 6,266,083).

14. As applied to claim 1, Shono in view of Hori discloses a single lens reflex camera comprising a taking lens, an image sensor, a finder, a moveable light splitting device, a driver to move the light splitting device as needed and a controller to change the light splitting device from semi-transparent in the first position to non-transparent or blocking in the second position, therefore it can be seen that Shono in view of Hori lacks a light splitter that remains at a second position while the sensor continuously senses a plurality of images. Sakaegi teaches a system where a mirror retracts to a second position out of the way of the sensor's optical path while the sensor is sensing a plurality of images (figure 4b, column 9, line 43 through column 10, line 36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the mirror system of Sakaegi to the camera of Shono in view of Hori to allow the camera to sense a plurality of images without returning the mirror to the first position between each image as claimed.

15. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shono (US 6,630,959) in view of Hori (US 5,860,034) as applied to claim 9 above, and further in view of Shi (US 5,150,215).

16. In regard to claims 4 as broadly as claimed, Shono in view of Hori discloses a camera that meets the conditions set forth in claim 1 as discussed above, therefore it can be seen that Shono in view of Hori lacks a light splitter that "provides a display which is able to display an image sensed by the image sensor". Shi teaches a mirror system, which can provide a display to both an image sensor (position one, figure 4b) and a user (position two, figure 4a). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the mirror system of Shi with the camera of Shono in view of Hori to allow a user and image sensor to view the same image (assuming that the camera is not moved).

17. In regard to claim 10 as broadly as claimed, Shono in view of Hori discloses a camera that meets the conditions set forth in claim 9 as discussed above, therefore it can be seen that Shono in view of Hori lacks a method that "displays an image sensed by the image sensor on the splitter when the splitter is in the second position". Shi teaches a mirror system, which can provide a display to both an image sensor (position one, figure 4b) and a user (position two, figure 4a). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the mirror system of Shi with the camera of Shono in view of Hori to allow a user and image sensor to view the same image (assuming that the camera is not moved).

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shono (US 6,630,959) in view of Hori (US 5,860,034) in further view of Sakaegi (US 6,266,083) as applied to claim 6 above, and further in view of Shi (US 5,150,215).

19. In regard to claim 7 as broadly as claimed, Shono in view of Hori in further view of Sakaegi discloses a camera that meets the conditions set forth in claim 5 as discussed above, therefore it can be seen that Shono in view of Hori in further view of Sakaegi lacks a method that "displays an image sensed by the image sensor on the splitter when the splitter is in the second position". Shi teaches a mirror system, which can provide a display to both an image sensor (position one, figure 4b) and a user (position two, figure 4a). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the mirror system of Shi with the camera of Shono in view of Hori to allow a user and image sensor to view the same image (assuming that the camera is not moved).

20. The examiner notes that there is a difference between the teaching of Shi and the *intended* meaning of claims 4, 7 and 10. However, as broadly as claims 4, 7 and 10 are written it is possible to interpret claims 4, 7 and 10 to mean a system such as that used by Shi. The examiner suggests rewriting the claim by substituting "electronic display" for display, adding "simultaneously" to the end of the claim or by some other appropriate measure.

Allowable Subject Matter

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21. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The prior art does not teach or fairly suggest a method for a camera to maintain a light splitter at a second position for a specific time after the image sensor senses an image, during which time the light splitter provides a display that displays the image sensed by the image sensor.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art further shows the current state of the art in half-mirror SLR cameras.

a. Aihara et al.

US 4,941,010

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J Henn whose telephone number is (703) 305-8327. The examiner can normally be reached on M-F 7:30 AM - 5:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJH
2/25/2004



NGOC-YEN VU
PRIMARY EXAMINER